

disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

f2
cont.
SUB 3 15. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

f3
irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

SUB 4 22. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

f4
introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or

less;

f4
cont wherein said hard-carbon coating selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

SUB
G6 29. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

f5 irradiating a laser light having an wavelength of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

SUB
G6 36. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

f6 irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

SUB
G7 43. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

f7 introducing a substrate made of an organic resin or an industrial plastic

material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

50. (Four Times Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

57. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

58. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

59. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

60. (Thrice Amended) A method for operating an optically recordable disk memory comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon

f9
cont.

coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or

less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

f9
cont

Sub
G10

68. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

69. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

f10

70. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

71. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

79. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having a wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less and wherein said hard-carbon coating contains hydrogen.

80. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

81. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

82. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a

fu
cont.

hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

f11
CONT.

90. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

91. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration

f12

at 20 atomic% or less.

92. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

93. (Twice Amended) A method of operating an optical magnetic disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

101. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

102. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, and wherein said hard-carbon coating is an outermost layer of the disk and wherein said element has a concentration at 20 atomic% or less.

103. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

104. (Twice Amended) A method of operating a compact disk comprising the

f13
cont.

steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

112. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

113. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

114. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

f14
cont. 115. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

f15 sub G15 123. (Thrice Amended) A method of operating a compact disk comprising the

steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

124. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing an optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

125. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein

f15
cont.

said hard-carbon coating contains hydrogen.

126. (Twice Amended) A method of operating a compact disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

134. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, and wherein said hard-carbon coating contains hydrogen.

135. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a semiconductor laser light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

136. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

137. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a semiconductor laser light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

file
cont.

Sub
G17
145. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

146. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

f17
irradiating a laser light having an wave length of 700 to 800 nm onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

147. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a laser light having an wave length of 700 to 800 nm onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

148. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a laser light having an wave length of 700 to 800 nm into said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less;

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

156. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500\AA or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is $30/\text{mm}^2$ or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

157. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing said optical disk having a surface protected by a protective film

comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said optical disk through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less,

wherein said hard-carbon coating contains at least one of element selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

158. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said hard-carbon coating contains hydrogen.

159. (Twice Amended) A method of operating an optical disk comprising the steps of:

introducing a substrate made of an organic resin or an industrial plastic material, said substrate having a surface protected by a protective film comprising a hard-carbon coating having a thickness of 500Å or less;

irradiating a visible light onto said substrate through said hard-carbon coating;

wherein the number of pin-holes in said hard-carbon coating is 30/mm² or less;

wherein said hard-carbon coating contains at least one of element

518
Cont.

selected from the group consisting of Si, B, N, P and F, wherein said hard-carbon coating is an outermost layer of the disk, and wherein said element has a concentration at 20 atomic% or less.

for
cont.